

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions and listings of claims in the application.

1. (Currently Amended) A three-dimensional image capturing device, comprising:
- a ~~first~~ light source that radiates a light beam ;
 - an image device that accumulates signal charge corresponding to a quantity of light received on said image device;
 - a distance information sensing processor that ~~radiates~~ controls radiating of a distance measuring light beam from said ~~first~~ light source to a measurement subject and detects distance information which relates to said measurement subject by receiving a reflected light beam from said measurement subject ~~due to said distance measuring light beam on said image device~~; and
 - a data transmitting processor that ~~controls radiation at a second light source and radiates~~ controls radiating of a data transmitting light beams from said light source, so that data is transmitted to an external device ~~through space~~.
- wherein said light source outputs the distance measuring light beam and the data transmitting light beam in a single operation.

Claims 2-7. (Cancelled)

8. (Currently Amended) A device according to claim 2 1, wherein a series of said distance measuring light beams and a series of said data transmitting light beams are superposed.
9. (Currently Amended) A device according to claim 8, wherein said distance information sensing processor radiates said distance measuring light beams from said

first light source a predetermined number of times, so that signal charge is accumulated in said image device due to each ~~reiterated~~ radiation of said distance measuring light beams.

10. (Currently Amended) A device according to claim 9, wherein timing for radiating said data transmitting light beams is based upon the timing of said ~~reiterated~~ radiation of said distance measuring light beams.

11. (Currently Amended) A device according to claim 10, wherein said series of said distance measuring light beams and said series of said data transmitting light beams are superposed, so that said data transmitting light beams are radiated in the intervals between said distance measuring light beams.

12. (Currently Amended) A device according to claim 11, wherein said transmitting light beams comprise a pulse beam representing binary data ~~in~~ having predetermined digits.

13. (Currently Amended) A device according to claim 10, wherein said distance measuring light beams and said data transmitting light beams are superposed by pulse-width modulation of said light beams, so that said light beams comprise two types of pulse beams having different widths, which represent binary data of said data and are concurrently used for detecting said distance information, ~~concurrently~~.

14.(Original) A device according to claim 9, wherein said distance measuring light beam is radiated before an accumulation of signal charge in said image device starts, and signal charge corresponding to said distance information of said measurement subject is accumulated during a period from a beginning of said accumulation to an end of said reflected light beam reception at said image device.

15. (Currently Amended) A device according to claim 14, wherein said data

transmitting light beam is radiated prior to said distance measuring light beam.

16. (Currently Amended) A device according to claim 15, wherein said data transmitting light beam is radiated during a period, from an end of said accumulation of said signal charge in said image device to a beginning of said distance measuring light beam radiation.

17. (Original) A device according to claim 8, wherein said distance measuring light beams comprise a synchronizing signal of an optical transmission system.

18. (Currently Amended) A device according to claim 2 1, wherein an accumulation of said signal charge in said image device is synchronously carried out with said data transmitting light beam, so that said data transmitting light beam can be used as said distance measuring light beam ~~as well, and by this, and~~ said data transmitting light beams and said distance measuring light beams are superposed with each other.

19. (Currently Amended) A device according to claim 18, wherein said distance information sensing processor radiates said distance measuring light beams from said ~~first~~ light source a predetermined number of times, so that signal charge is accumulated at said image device due to each ~~reiterated~~ radiation of said distance measuring light beams.

20. (Currently Amended) A device according to claim 18, wherein a series of said data transmitting light beams represents binary data.

21. (Currently Amended) A device according to claim 18, wherein said data transmitting light beams comprise pulse modulated laser beams.

22. (Currently Amended) A device according to claim 21, wherein a data sequence transmitted by said data transmitting light beams comprises a partition signal that delimits said data sequence by predetermined binary digits of the data.

23. (Original) A device according to claim 18, wherein said image device

comprises a plurality of photoelectric conversion elements that accumulates signal charge corresponding to a quantity of light received, and signal charge holding units disposed adjacent to each of said photoelectric conversion elements.

24. (Original) A device according to claim 23, wherein the accumulation of said signal charge in said image device begins with a fall of an electric charge discharging signal that discharges the charge accumulated in said photoelectric conversion elements, and ends with a fall of an electric charge transfer signal that transfers said signal charge accumulated in said photoelectric conversion elements to said signal charge holding units.

25. (Original) A device according to claim 24, wherein said electric charge transfer signal rises approximately simultaneously with the fall of said electric charge discharging signal.

26. (Currently Amended) A device according to claim 25, wherein said electric charge transfer signal is generated by ~~conjunction~~ combination of a standard electric charge transfer signal comprised of periodic pulse signals and a data synchronizing pulse signal generated synchronously with the fall of a pulse signal of said data sequence;

said electric charge discharging signal is generated by ~~conjunction~~ combination of said data synchronizing pulse signal and a standard electric charge discharging signal having a period ~~of~~ which is the same as said standard electric charge transfer signal and from which the phase is delayed by a half period; and

said data synchronizing pulse signal is synchronized with said standard electric charge discharging signal and the pulse width of said data synchronizing pulse signal is the same as one period of said standard electric charge transfer signal.

27. (Currently Amended) A device according to claim 18, wherein the

accumulation of said signal charge starts when a pulse of said data transmitting light beam falls.

28. (Currently Amended) A device according to claim 19, wherein said distance information sensing processor ~~and said data transmitting processor are actuated~~ is actuated and said data transmitting light beams are radiated during a distance measuring period, in which said distance measuring light beams are repeatedly radiated said predetermined number of times, said distance measuring period comprising:

a data transmitting period, in which said distance measuring light beams and said data transmitting light beams are superposed and radiated; and

a ~~supplement~~ supplemental light emitting period, in which distance measuring light beams are radiated so as to supplement the number of said distance measuring light beams radiated in said data transmitting period, by ~~the~~ a number deficient from sufficient to obtain said predetermined number of times.

29. (Currently Amended) A receiver for use in an optical transmission system, a transmitter ~~of which comprises~~ that cooperates with said receiver, comprising a three-dimensional image capturing device, ~~comprising:~~ including a first light source that radiates a light beam; an image device that accumulates signal charge that corresponds to a quantity of light received on said the image device; a distance information sensing processor that ~~radiates~~ controls radiating of a distance measuring light beam from said ~~first~~ the light source to a measurement subject and detects distance information which relates to said the measurement subject by receiving a reflected light beam from said the measurement subject ~~due to said distance measuring light beam on said image device;~~ and a data transmitting processor that ~~controls radiation at a second light source and~~ radiates controls radiating of a data transmitting light beams from said light source, so

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that data is transmitted to said receiver of an external device ~~through space~~, wherein said light source outputs the distance measuring light beam and a data transmitting light beam in a single operation; said receiver comprising:

a configuration that receives a data transmitting light beam and that receives a distance measuring light beam;

wherein said receiver starts a data receiving operation when said receiver receives said distance measuring light beam.

~~wherein said external device starts a receiving operation of said data when said receiver receives said distance measuring light beam~~

Claim 30. (cancelled)

Claim 31. (new) A three-dimensional image capturing device, comprising:

a light source that radiates a light beam ;

an image device that accumulates signal charge corresponding to a quantity of light received on said image device; and

a distance information sensing processor that controls radiating of a series of distance measuring light beams from said light source to a measurement subject and detects distance information which relates to said measurement subject by receiving reflected light beams from said measurement subject whereby signal charge is integrated in said image device for each radiation of said distance measuring light beams;

wherein said light source outputs a series of data transmitting light beams while radiating said series of distance measuring light beams.

Claim 32. (new) A device according to claim 31, wherein said data transmitting light beams are output in the intervals between said distance measuring light beams.

Claim 33. (new) A device according to claim 31, wherein said series of distance

measuring light beams are subjected to pulse-width modulation to include said series of data transmitting light beams.

Claim 34. (new) A three-dimensional image capturing device, comprising:

a light source that radiates a light beam;

an image device that accumulates signal charge corresponding to a quantity of light received on said image device; and

a distance information sensing processor that controls radiating of light beams from said light source to a measurement subject and detects distance information which relates to the measurement subject by receiving reflected light beams from the measurement subject;

wherein said light beams comprise data transmitting light beams and an accumulation of said signal charge is carried out synchronously with output of said data transmitting light beam from said light source.